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VII. *Description of several Marine Animals found on the South Coast of Devonshire.* By George Montagu, Esq. F.L.S.

Read December 7, 1802.

As a partial residence for some years on the coast of South Devon, has given me an opportunity of more immediately turning my thoughts on the animal productions of the sea, so my researches, in this confined coast of that unbounded and immeasurable tract, have convinced me how little is yet known of the hidden treasures of the deep.

In pursuit of my first object, that of making myself acquainted with all the *British Testacea* and their animal inhabitants, as far as possible, I soon discovered that much remained to be done in that branch of natural history; having with diligent search and indefatigable attention added nearly double the number of species to those already given by any author, as indigenous to our coasts.

In the different modes which were adopted to obtain these objects, and that mostly under my own eye, it was not possible to examine the mass of matter which was occasionally forced from the bottom of the ocean, without having the attention diverted by the singularity and beauty of the wonderful variety with which that element is replete; and I soon discovered that in the *Crustacea* and *Mollusca*, as well as *Testacea*, the British Fauna, and, perhaps, natural history in general, especially with respect to the smaller marine animals, are far from being arrived at maturity.

Amongst the former, the genus *Cancer* seems to be much more numerous in its species than has been generally imagined; and  
while

while some have been described as mere objects of the microscope, others of superior size can be supposed only to have escaped notice from locality. In this genus I could add many to those already described as English, the greater part of which appears to be entirely new, or, at least, such as I can find no synonyms for, by the laconic style of most general writers on natural history.

From these I have selected figures and descriptions of six of the most curious.

Of the *Oniscus* there also appear to be many non-descript species, especially amongst the more minute; but I have only selected two for the present occasion: these, as well as those of the preceding genus, are figured only by outlines, as sufficient to elucidate this description.

The *Monoculus* is another tribe of insects which are sufficiently numerous both in fresh and in sea water; but it is somewhat extraordinary, that, out of the species already enumerated by Müller and others, not above ten or twelve are marine: to this division, therefore, many might be added; but as these are only microscopic objects, I shall forbear touching on them at present.

Of the *Intestina* I shall give descriptions only of two species of *Gordius* and one *Sipunculus*: this last, and one of the former, appear to be entirely new; the other so little known as to have been omitted by later writers. These genera are at present very small; one containing five, the other only two, species: the additional ones described possess such strong specific marks of distinction that figures are not required.

To the *Mollusca* tribe a great deal might be added; many of which, from their extreme beauty, elegant and complicated structure, claim no small share of attention and admiration.

In

In this class there are many which seem to vie with each other to astonish the beholder, by the superabundant beauty that seems to be thrown away in the fathomless deep, where, doubtless, thousands of their congeners will ever remain in secret, and never come under the scrutinizing eye of the naturalist.

Amongst this tribe, I trust, one species of *Laplysia* may be added to the very few belonging to that genus; for although it does not exactly correspond with all the Linnæan characters, yet it cannot with equal propriety be placed elsewhere.

Of the *Doris*, figures of five species are given, some of which are certainly new; the others, of which doubts may be entertained, have either never been described as English, or no correct figures of them have ever come to my knowledge.

The genus *Amphitrite* might possibly afford more than one new species; but, as many of these animals inhabit *Testacea* and *Subtestacea* (if the expression may be allowed), the *Sabella*, this may be considered, with the *Nereis* and *Terebella*, as broken genera; for certainly the animals and their cases, or tubes, should go together, and not have different places allotted to them in the system of nature.

If, therefore, the genus *Sabella* is admissible in the order *Testacea*, its several animal inhabitants, like those of real shells, would become a secondary consideration, and serve only as marks of specific distinction. But in this case, that genus should be pruned of all the parasitical branches that have been intruded upon it without reason; I mean the numerous cases of the larvæ of subaquatic insects, or those of the *Neuroptera* order, such as *Phryganea* and *Ephemera* produced in the fresh waters of Thuringia, and equally plentiful in England.

The figure of one species only is herewith given, and it appears to be new; at least no books in my own library, or those

those of my friends within my reach, possess, in figure or description, any thing representing the object in question.

The *Nereis* is a very numerous class, and, doubtless, a variety of new species might be added; but the great difficulty of defining the distinction of some of those already described, makes it still more difficult to determine what might be added: I submit, however, the description of four, whose specific marks are sufficiently strong to induce me to believe that they are new.

To this list of marine animals I shall only add one other, and that of the genus *Asterias*.

In this genus I have not been able to discover much new matter, but am inclined to believe the species, at least those of British origin, have been already multiplied beyond its natural limits; as, no doubt, several described by Borlase, and afterwards by Pennant and others, for distinct, (upon the authority of the former,) are only varieties of a single species, the *A. aculeata*.

The one which I have described is of so extraordinary a growth, with respect to the disproportion between its arms and body, that it cannot be confounded with any other species, and I suspect has not been described; at least nothing like it has come to my knowledge.

Having thus enumerated the subjects described and figured in the accompanying sheets, I beg leave to submit them, with diffidence, to that Society of which I have the honour of being a member; not doubting but the efforts of an individual to elucidate any part of natural history, and in particular that of his own country, will be received with those indulgences to which a remote situation from the metropolis and vortex of knowledge may in some degree entitle him, as few private libraries are capable of affording sufficient information on the various subjects so necessary to the natural historian.

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The honourable Society may, however, be assured of the accuracy of the outlines represented on the annexed Tab. VI., which were taken by myself; and may equally rely on the faithful representations of the drawings of Tab. VII., which were taken from the living animals by an ingenious friend, whose merit of execution is not more conspicuous than strict attention to character.

CANCER RHOMBOIDALIS.

Tab. VI. Fig. 1.

With an uneven subrhomboidal thorax, destitute of spines, but furnished with three large tubercles on the fore part, and two others near the tail: front a broad thin concave plate, projecting into a long sharp-pointed proboscis: antennæ two, setaceous, longer than the proboscis: eyes vastly large, prominent, reticulated, pedunculated, nearly half the diameter of the thorax: arms large in proportion, smooth; on the first joint beneath a hooked spine, turning inwards; fangs toothed: legs eight, subulate; a long spine on the first joint of each, underneath: tail nearly as long as the body, slender, cylindric-depressed, formed with five joints; the end truncated, hirsute: colour, when alive, light olive-green.

Length, from the point of the proboscis to the end of the tail, a quarter of an inch.

Found amongst *Sertularia*, on the back of *Cancer dodecos*.

CANCER MAXILLARIS.

Tab. VI. Fig. 2.

With a subcylindric body of six joints, the anterior one largest; front armed with large, strong pored jaws, concave above,

convex beneath, toothed: antennæ four, setaceous, the upper pair longest, exceeding the length of the maxillæ: eyes scarcely produced, fixed, punctated; arms and legs without distinction ten, subulate: tail small, flat, cylindric, with six joints, terminated with bristles: a few scattered hairs on other parts of the tail and legs: colour, when alive, brown.

Length, a quarter of an inch.

This singular insect has full as much the appearance of an *Oniscus* as a *Cancer*; but the formation of its tail, which is articulated, and received into a proper channel beneath the body, seems to demand a preference to the latter; though perhaps, in fact, it does not strictly belong to any of the Linnæan genera.

#### CANCER PHASMA.

Tab. VI. Fig. 3.

*Cancer linearis*. *Linn. Syst.* p. 1056. *Gmelin Syst.* p. 2992. *Bast.*

*Op. Subs.* 1. p. 32. t. 4. f. 11. *Turton Linn.* iii. p. 761.

*Oniscus scolopendroides*. *Pall. Spic. Zool.* 9. t. 4. f. 15.

*Cancer Atomos*. *Linn. Syst.* p. 1056. *Gmel. Syst.* p. 2992. *Brit.*

*Zool.* iv. t. 12. f. 32. *Turt. Linn.* iii. p. 761.

With a slender body of six joints, independent of the head: on the first joint are two spines, a third on the fore part of the second joint, and a fourth on the head, all pointing forward: the rest of the body smooth: antennæ four, the upper pair nearly as long as the body; lower pair half that length, and the extreme joint of each pectinated with bristles: eyes fixed, reticulated, usually of a reddish colour: close to the mouth are two very short palpi, or feelers, with hooked claws; behind these are two others much longer, armed with single moveable fangs: on the first joint of the body  
are

are two long arms, with very large oblong-oval hands, furnished with a strong spine on the inside, and a long moveable fang, which is capable of closing upon the spine, in order to secure its prey: the front of the hand in some is also narrowed and elongated into a spine; the second and third joints of the body are each provided with a pair of flat oval fins; the three posterior joints are each furnished with a pair of long, slender legs, with a single hooked claw; the hindmost are the longest, and originate from the extremity of the body, the animal being destitute of tail.

Length rarely exceeds three quarters of an inch, and seldom so much: colour various, sometimes red, but more commonly pellucid olive green.

The female differs in possessing several plates, or valves, beneath the body, situated between the two pairs of fins: the office of these is to carry and protect its eggs or young, at which time they extend very considerably, and form a kind of pouch. We have seen this receptacle distended with ova from fifteen to twenty, readily distinguished through the transparent plates. In this part a very strong pulsation is observable.

While examining a female in a watch glass of sea water under a microscope, we were agreeably surprised to observe not less than ten young ones crawl from the abdominal pouch of the parent; all perfectly formed, and moving with considerable agility over the body of the mother, holding fast by their hind claws, and erecting their heads and arms.

On a small species of *Fucus* (the name of which was not noted) a vast number of these curious insects were collected, of both sexes, and of all sizes. When at rest they only held by their hind claws: in motion, the arms were also used, and the progression

was somewhat similar to that of the looper caterpillars, or larvæ of the moths of the Linnæan division of *Geometræ*\*.

There seems little doubt but this is the insect intended by Mr. Pennant under the title of *Cancer Atomos*, and which Gmelin has quoted for the Linnæan *Atomos*, although he expressly says it inhabits running waters. On this head Mr. Pennant is silent; at the same time quotes *Baster's mirum animalculum in corallinis*, which is evidently marine. Gmelin quotes the figure given by Baster for the *C. linearis*, and expresses a doubt, after describing *C. Atomos*, whether it be distinct from the *linearis*.

We have collated this matter as far as opportunity and the obscurity of the subject will permit, and have scarce a doubt but that the *linearis* and *Atomos* of Linnæus are the same; and that the figures given by Pennant, Baster, and Pallas are to be referred to for the insect in question; and though by no means correct, there is sufficient character to induce us to believe that these are our *C. Phasma*.

It may seem strange to bring together two insects that are said to inhabit such opposite places as fresh and sea water: such mistakes, however, may be found in other parts of the *System of Nature*, and are strongly marked in the same genus; the *C. Pulex* and *C. Locusta* have been confused by an erroneous supposition that both occasionally inhabit fresh as well as salt water.

Whoever will take the trouble to compare our figure with those above quoted, will find all the appendages to the body correspond, except the pair of minute *palpi* close to the mouth, which those figures want; and that no tail is to be found in ours. Some allowance, however, must be made in figures of microscopic ob-

\* Some are destitute of spines on the body and arms, and differ somewhat in the formation of the latter; besides having that part extremely tomentose.

jects,



jects, which not only may appear different to another person in a different point of view ; but also require more than ordinary care in the delineation ; and after all, an engraver too frequently destroys the little character such delineation may possess.

In the great variety we have examined, not even the rudiment of a tail ever appeared, and the only variation seemed to be in the hands, which in some were much broader, and, as well as the back, were destitute of spines.

Being inclined to consider, with Gmelin, that the *C. Atomos* and *linearis* may be the same ; and as we have little doubt but such will be considered as no other than our *C. Phasma*, a name which had been given to this species previous to an investigation of the subject so closely ; it has been thought proper to retain it, that those who fall into the same opinion may bring the two Linnæan insects together under a new name, in order to prevent further confusion, which might be the case were they joined under either of the original names.

CANCER PALMATUS.

Tab. VI. Fig. 4.

With a smooth, somewhat compressed body, with thirteen joints : colour, when dead, pale yellowish brown : antennæ four, superior pair longest, half the length of the body ; each pair composed of three large joints, with several small articulations at the end : eyes large, fixed : arms two ; hands remarkably large, flat, triangular, furnished at the upper angle with a moveable fang, capable only of closing upon the middle, or palm, which is formed a little concave ; the back of the hand convex ; joint of the wrist deeply cut, or indented, on the lower side : legs six ; thighs broad, flat : caudal fins two pairs, subulate, with two joints each ; the extreme joint of the tail is furnished with two small appendages ;

dages; the next joint with two minute spines; the third joint with a single spine.

Length, three-eighths of an inch.

CANCER SCORPIOIDES.

Tab. VI. Fig. 5.

Body suboval in a side view, much compressed: a carinated ridge along each side runs into the first articulation of the tail: on the hinder part of the body are two joints, to the under part of which some of the legs are fixed; these are extremely slender, and lie closely folded up: the tail is longer than the body, formed of eight tumid articulations, much resembling that of a scorpion; the extreme joint terminated by two subulate appendages, or caudal fins, each with two joints.

We have been obliged to give the figure of a mutilated specimen of this curious insect; the only one that has ever come under our examination. The length is a quarter of an inch.

The head or fore part was wanting, consequently no eyes nor antennæ could be observed; but the rudiment of arms on the fore part of the body and the legs, which were mostly compact, drawn up closely, seems to entitle it to a place amongst the *Canceri*: but we submit it to the opinion of the more able naturalists of the Linnean Society.

If the *Cancer Esca* of Gmelin, p. 2993, had possessed the same number of joints in the tail, it might have answered the description, though the size of that species is not recorded.

CANCER ARTICULOSUS.

Tab. VI. Fig. 6.

With an oblong, smooth, glossy body, a little compressed on the sides, with eleven joints, of a cream colour when dead: antennæ

tennæ four, the upper pair longest, but not half so long as the body: eyes large, of a garnet colour, immoveable: arms four, of a very singular form; the foremost pair with a sub-globose, cheli-form hand, with the fixed claw very slender, and the moveable one, or thumb, long and double jointed, or furnished with an additional hooked fang at the end: second pair with an ovate-oblong hand furnished with one long moveable hooked fang; at the wrist arises a compressed slender plate, projecting forward, and almost meeting the fang when closed: legs five pairs, small, subulate: tail terminated by several slender, flat, caudal fins.

Length, half an inch. Inhabits the deep: taken by the dredge amongst shells and algæ.

ONISCUS HIRSUTUS.

Tab. VI. Fig. 7.

With an oval body with six convex hirsute joints, independent of the head and posterior plate; this last is large, very convex, and rounded at the end, furnished on each side with a long serrated oar or fin: antennæ obsolete: legs eight, provided with double claws.

Length, one-eighth of an inch. Colour brown, with sometimes a few faint blueish spots on the posterior joint.

ONISCUS CYLINDRACEUS.

Tab. VI. Fig. 8.

With a smooth, glossy, cylindric, and very convex body, with seven joints, independent of the head, tail, and five narrow segments at the base of the latter: central caudal fin subovate, with two smaller lateral ones on each side, which, when spread, give it a quinque-dentate appearance: antennæ four, short, the upper pair

pair not half so long as the other : legs fourteen ; feet of the foremost six broad, serrated on the inside ; all armed with a single claw.

Length, an inch ; breadth, not quite a quarter. Colour, pale yellow clouded with cinereous on the sides.

#### GORDIUS MARINUS.

Sea long worm. *Borlase Cornw. p. 255. t. 26. f. 13.*

This extraordinary vermis, originally described by Borlase as inhabiting Mounts Bay in Cornwall, we do not find mentioned by any other author : and as this topographical writer is very concise with respect to its description and history, our further observations upon it may not be unacceptable to the Society, and to naturalists in general.

This species of *Gordius* is not uncommon on several parts of the south coast of Devonshire, where it is by some of the fishermen known by the very applicable name given to it in the *History of Cornwall*: It is, indeed, of so prodigious a length that it is impossible to fix any bounds ; some of the fishermen say thirty yards,—but perhaps as many feet is the utmost : those specimens which have come under our inspection did not appear to exceed twenty feet, and more commonly from eight to fourteen or fifteen.

Its usual appearance is filiform, except towards the posterior extremity, where it somewhat decreases in size ; it is, however, like most of the soft animals, considerably amorphous : the skin is perfectly smooth, and covered with a strong tenacious slime : the head, or anterior end, is usually more depressed, and broader than any other part ; but all parts are equally alterable, and in continual change from round to flat, rising into large swellings or protuberances in various parts, especially where touched : the front is sometimes obtusely pointed, but more commonly spread into  
small

small indentations, or has a somewhat quadrifid appearance: the mouth is small, and placed longitudinally beneath: the vent is situated at the other extremity, through which the fæces are ejected in a singular manner. For this operation the end is raised, and a small inflated transparent bladder is first protruded, into which the fæces are then driven, and retained for a few seconds; after which they are expelled with force in a continued small stream, like a fine slender worm of a light yellow colour.

If the animal be wounded, or the body divided, small threads of milky appearance issue from the wound, and do not mix with the water without agitation: the same happened in spirits; for on putting one alive into diluted alcohol it divided into several parts by violent contraction: this lacteal fluid, on being shaken, rendered both spirit and water turbid.

Its colour is generally dusky brown, with a tinge of green; rarely rufous brown, with five faint longitudinal lines the whole length of a paler colour.

The largest are taken by dredging, in old bivalve shells; but are sometimes found under stones at low water, always coiled or contorted in the most complicated manner: those which we have kept in sea water never attempted to extend themselves, but confined their motion wholly to contortion.

The expansion and contraction are so unlimited that it is scarcely possible to ascertain the utmost length of this worm: one which was esteemed to be about eight feet long was put alive into spirits, and instantly contracted to about one foot, at the same time increasing double the bulk, which originally was about the diameter of a crow's quill. In the vast exertion of the muscles, the animal is generally divided at those parts which had been twined into knots.

This worm is very difficult to preserve perfect without contraction; for, if suffered to die in its natural element, one part will

decay while the other is alive; and the addition of any thing offensive produces contraction; even fresh water.

#### GORDIUS ANNULATUS.

This beautiful worm is of a garnet red colour, with a pure white line along the back, and another on each side, extending the whole length; between these are two rows of minute white spots, commencing about an inch from the head, and extending quite to the posterior end, the extremity of which is rounded and white: the fore part of the head, except the upper lip, is also of that colour: at small irregular distances are white transverse lines or bands that encircle the body, some of which are broader than the rest.

Length, six or seven inches: diameter at the anterior end, one line; rather less at the posterior.

This, like the preceding, is capable of great contraction, expansion, and variation in shape; spreading in some parts, while others rise into swellings: but its more usual form is a little flattened.

Several of this species were taken in old shells, and amongst coralline, by dredging. In all probability it is not common; otherwise an animal with such strong specific characters could not have been overlooked.

#### SIPUNCULUS STROMBUS.

Body rather more taper than cylindric in its contracted state; but, when extended, the anterior end, for nearly one half its length, is not above half the size of the posterior: it is quite round, and not the least depressed in any part; the larger end seems less capable of contraction than the anterior; this latter being endowed with the singular property of retracting or withdrawing itself internally, in the same manner as the common *Limax* withdraws the  
ocellated

ocellated tentacula, receding by degrees at the mouth until the more slender part of the body is, as it were, turned outside in\* : the mouth is surrounded with *lacinia*, or short feelers : the colour is livid, and the whole animal smooth and firm, except about the middle, or just behind the part which increases in size, and where the vent is placed, which is verrucose.

Its utmost length appears to be between three and four inches ; the diameter of the largest part, one-eighth of an inch.

Of this genus of *Intestina* there do not seem to be more than two species hitherto described : the *S. saccatus* was supposed only to inhabit the American and Indian seas, till it was discovered to be British by Mr. Martin of Teignmouth : *S. nudus* has been longer known to be indigenous to our coasts, and is not uncommonly found buried in sand near low water mark †.

This animal is parasitical, taking possession of the old shells of *Strombus Pes Pelecani*, to which it seems peculiar, for in no one instance have we been able to discover it elsewhere. It is remarkable that the aperture of this shell, which is contracted or narrow, is ill calculated for the habitation of *Cancer Bernardus* ; and of course becomes better adapted for the dwelling of the *Sipunculus*, as not likely to be destroyed or molested by that predatory insect.

Where this species of *Sipunculus* is found, old shells of *Strombus Pes Pelecani* are not uncommon ; and not a single instance occurred that such were not taken possession of by this animal : and as the *Hermit Crab* is more plentiful in the same place than

\* This circumstance, which has not been generally noticed, seems to be a strong generic character.

† Both these are figured in Martin's *Marine Vermes*, i. t. 1. f. 2. 3. The former is also figured by Pallas in his *Spicilegia Zoologica*, x. t. 1. f. 8. and the latter may be found in the *British Zoology*, iv. t. 20. f. 10.

we ever remember to have seen it elsewhere, occupying every other deserted turbinated or spiral shell, from the small *Turbo pullus* to the *Buccinum undatum*, it must be concluded that the adopted habitation of this *Sipunculus* is not suited to the form of that crab; a matter of no small proof of the wise dispensations of an omnipotent power, the source of original instinct, with which animals, even the most contemptible in appearance, are endowed for the preservation of their species.

This animal further secures itself from the attack of other enemies by closing up the aperture of the shell (except a round hole sufficient for its body) with sand strongly agglutinated together; and this as far in the shell as is necessary for contracting it to the size required. Within this the larger or posterior part of the animal, as far as the vent, is concealed in the spiral volution, protruding occasionally that part only which is capable of internal retraction.

It differs from *S. nudus* in being much shorter and verrucose for a considerable space behind the vent, in not having so sudden a decrease in size before the vent, and in the fringe or feelers round the mouth being longer; it has also much greater retractile powers in proportion to its length, and when wholly recceded within the shell is seldom above an inch and a half long.

#### LAPLYSIA VIRIDIS.

##### Tab. VII. Fig. 1.

With the fore part of the body like a common *Limax*: tentacula or feelers two, flat, but usually rolled up, and appear like cylindrical tubes; at a little distance behind the tentacula, on each side, is a whitish mark, in which is placed a small black eye: the body is depressed, and spreads on each side into a membranaceous fin, but which gradually decreases from thence to the tail,  
or



or posterior end: this membranous part is considerably amorphous, but is usually turned upwards on the back, and sometimes meeting, though most times the margins are reflected; this, as well as the back, is of a beautiful bright grass-green colour, marked on the superior part of the fins or membrane with a few small azure spots, disposed in rows; the under part with more numerous, but irregular spots of the same: the fore part of the head is bifid; the lips marked by a black margin: the sustentaculum is scarce definable, as it most commonly holds by a small space close to the anterior end, and turns the posterior end more or less to one side: it sometimes, however, extends itself for the purpose of locomotion, in which it scarce equals a snail.

Although this animal does not strictly correspond with the characters prefixed by Linnæus to the genus *Laplysia*, yet it approximates so nearly to the *L. depilans* in its external form, that we cannot hesitate to place it with that animal, though we could not discover any membranaceous plate\* or shield under the skin on the back.

While we are on the subject of the *Laplysia depilans*, we cannot help remarking how strange it is that the poisonous touch and offensive smell, which appear to have been the origin of its name, should be without reason handed down to posterity, and that such an opprobrium should have so long been fixed upon one of the most harmless and inoffensive of creatures.

On the coast of Devonshire we have had frequent opportunities of handling these animals with impunity; for they neither affect the hand nor the olfactory nerves, but are as destitute of smell as of any depilatory power. They seem, on this part of our coast, to

\* This part is properly corneous, and is the link between the true *mollusca* and *testaceous* animals. The *Bulla aperta* and some other shells are concealed in the same manner by their respective animals.

grow to as large a size as in the Mediterranean sea, being sometimes taken five or six inches in length, and when contracted would fill a large tea-cup. The beautiful purple dye which is discharged so copiously from this animal might, possibly, be turned to some advantage, if a method could be devised to fix it: we have seen several yards of a fishing-net stained with it under water; and with difficulty it is washed off the hands.

DORIS PINNATIFIDA.

Tab. VII. Fig. 2. 3.

With the front rounded; body slender, somewhat taper: colour gray, spotted with olive green: on the fore part two trumpet-shaped tentacula, terminated by a retractile filiform appendage: along the back are two rows of pedunculous appendages, longer than the diameter of the body; these are of a conic shape, each composed of five or six series of blue gray papillæ, marked with a black spot at their tips: the stem or centre part of the peduncle is a mixture of olive green and rufous brown. Fig. 3. is a magnified representation of the peduncle.

Length, three-tenths of an inch.

DORIS CÆRULEA.

Tab. VII. Fig. 4. 5.

With a linear body, of a green colour, covered with large blue clavated tubercles greenish at their base, and tipped with orange; these are disposed in several transverse rows: tentacula four, sub-filiform, green: eyes placed at the base of the hindmost tentacula: between the second and third row of tubercles are two pink oval vesicles on the back, a little inclining to one side. Fig. 5. represents the peduncle magnified.

Length, a quarter of an inch.

DORIS

DORIS FLAVA.

Tab. VII. Fig. 6.

*Doris clavigera.* Gmel. *Syst.* p. 3104. 5.? Mull. *Zool. Dan.* t. 17.  
f. 1. 3.?

With a white body spotted with bright orange yellow: in the front are four long, pointed, orange-coloured feelers, whitish at their base, projecting forwards: on the top of the head two upright wrinkled tentacula of the same colour: the vent is placed on the back near the posterior end, surrounded by seven feathered appendages; beneath which, on each side, is another long appendage, quite smooth, and larger than the tentacula; these are all tipped with orange: the sustentaculum projects very considerably behind, where it becomes extremely slender.

Length, rather more than half an inch.

DORIS MARGINATA.

Tab. VII. Fig. 7.

*Doris lævis.* Gmel. *Syst.* p. 3106. 22.? Mull. *Zool. Dan.* ii. t. 47.  
f. 3. 5.?

With an oval white body tinged with pink in the middle, surrounded with a thin membranaceous margin: the front usually formed into four obtuse points; sides undulated: tentacula two, wrinkled or slightly feathered; these issue from two depressions, retractile: vent furnished with feathered members: sustentaculum broad.

Length, a quarter of an inch.

A variety rather larger, of a pale sulphur-colour, tinged or slightly mottled with pink on the upper part of the body and members of the vent.

These

These have a slight roughness in appearance when examined by a lens; but must not be confounded with *D. verrucosa*, which is also found on the south coast of Devon, and is strongly tuberculated, and in other respects very different.

DORIS MACULATA.

Tab. VII. Fig. 8. 9.

With a slender body, tapering to a point at the posterior end, furnished with several pairs of large subclavate peduncles along the back: the summit of each of these is cleft or divided round the margin, usually sexpartite; the centre is somewhat concave, from whence arises a single papilla: front obtuse: tentacula two, large, trumpet-shaped, from the middle of which springs a long, slender, filiform, retractile appendage: colour pale yellow, with minute spots of pink.

Length, a quarter of an inch, or rather more.

The tubercles on the back of that from which the drawing was taken were four pairs, and a single one near the extremity of the body. The peduncle magnified is shown at fig. 9.

✓ AMPHITRITE VOLUTACORNIS.

Tab. VII. Fig. 10.

The length of this singular and beautiful animal is about five inches, and the breadth half an inch; near the head a little depressed, and somewhat smaller towards the posterior end, where it is more flattened, and terminates in a tongue-shaped point: the tentacula are more than an inch long, elegantly plumose and convoluted: the stem is furnished with long ciliated fibres on one side; and as it makes about three spiral turns, the fibres be-  
come

come equally extended in a spiral direction; the plumes on the lower part of the tentacula meet near the mouth, which is very little protruded; these are of a light yellow brown, banded and mottled with chesnut: behind the head a ruff or scalloped membranaceous reflected margin, composed of four parts or petals, which almost meet underneath, of a dark purple colour in the front, edged with white; pale beneath: scutellum composed of ten joints, with three rows of plates; those of the middle largest, and of a yellow colour; the sides purplish: the other part of the body above is formed of four series of plates or scales, with a slight sulcus down the middle of the back; the segments of this part are about eighty, of a dark purple brown colour: on each side is a row of tubercles, one at each annulation, and a small pencil of retractile bristles; those on the sides of the scutellum are most conspicuous: the plates or segments beneath are single.

This elegant species of *Amphitrite* was taken by dredging for oysters, and was brought to us alive in sea water. In this situation an opportunity offered of examining the curious structure of its beautiful tentacula, which far exceeds the pencil of the artist. These are not in the least retractile, but are capable of more or less extension, by more or less contortion, and may possibly at times be thrown out at full length; but the animal never showed any such inclination after it was taken, though kept alive for several days, and when dead was more contorted than before. The fibres are sometimes laid close, at other times expanded at right angles, showing the columella or stalk.

The animals of this genus are usually of a soft nature, and generally protect their tender bodies by a tubular case, into which they can wholly recede: this, on the contrary, by the firmness of

its skin, seems to require no such artificial covering, and probably never prepares such a case\*.

#### NEREIS IRICOLOR.

This is the largest species of the genus hitherto noticed as an inhabitant of the British seas. Its length, when alive, was about three feet; nearly round, or very convex and cylindric, but tapering a little near the anterior end: upper lip somewhat protruded, whitish; at the base of which are four minute black spots disposed in a transverse row: no tentacula or feelers, nor visible eyes: the posterior end, half an inch from the tip, suddenly decreases in size, and tapers to an obtuse point: this part is of an orange red; the rest of the animal is of the most beautiful prismatic colours, changeable in different points of view, but of an olive green hue in general appearance, becoming of a fine purplish red near the anterior end: the segments are about three hundred and ninety, with as many tubercles and fasciculi on each side.

It was about the size of a raven's quill when extended, but, being immersed in fresh water, contracted to one foot in length, increasing in bulk to the size of a goose quill.

This beautiful species of *Vermes* we found coiled under a stone amongst the rocks at Milton.

#### NEREIS MARGARITA.

Body long, convex above, cylindric, tapering a little near the posterior end: colour changeable greenish bronze, with a slender

\* This, though somewhat similar to the Amphitrite that inhabits *Sabella penicillus*, the *Corallina Tubularia Melitensis* of Ellis, must not be confounded with it: the convoluted tentacula, doubly ciliated fibres, and very superior magnitude, are sufficient marks of distinction; besides which, the knots or joints in the long fibres of the tentacula of this are not to be found in the other.

purple

purple streak down the middle of the back: segments about seventy-four, furnished with as many peduncles and fasciculi on each side, and a short filamentous appendage to each peduncle: the fore part of the head is divided into three lobes, the two outer ones are largest, and the end of each is furnished with a small tubercle, which seems capable of some extension, and possibly may be wholly retractile; the middle lobe terminates in two short feelers; at the base of each of the outer lobes are four others, very similar: the mouth is placed beneath, and is capable of being protruded, armed with two dark coloured fangs; but these are not visible when the mouth is contracted: at the base of the protruded part of the mouth is a circle of numerous minute black spots: round the fangs are five other series of the same, and two at the upper part: at the extremity of the posterior end are two filaments: the whole under part of the animal is paler than the upper, and when examined by a lens exhibits a beautiful pearly gloss.

Length, five or six inches; diameter, about one-eighth of an inch. Inhabits the same place as the last, and is equally rare.

NEREIS LINEATA.

Body slender, depressed, yellow, with numerous fine purple spots disposed in six lines; two along the back, and two along each side: segments about one hundred and twenty: tentacula six; two pairs in front scarce longer than the tubercles, and one on each side the head of a superior length: posterior end furnished with two short appendages.

Length, one inch and a half.

Taken by dredging in deep water: rare.

## NEREIS OCTENTACULATA.

Body depressed, red, with two long, and six short, red setaceous tentacula: eyes four, one pair placed behind the other: along the back a purple line, with a yellow spot at each joint: segments between eighty and ninety, with as many peduncles and fasciculi on each side.

Length, three inches; breadth, rather more than one eighth of an inch, but less at the posterior end.

Found with the preceding, and equally rare.

## ASTERIAS BRACHIATA.

Body roundish, or sub-pentangular, covered above with small oval scales disposed in ten alternate broad and narrow rays; the smaller rays rather conic, terminating between two oblong smooth plates, placed at the junction of each arm: the arms are five in number, extremely long and slender, very gradually decreasing to their ends: each of these is composed of between three and four hundred articulations, which appear like so many smooth scales above and beneath; the sides are furnished with very small moveable spines, eight or nine in a row, at every joint; the scales near the body beneath are bisulcated longitudinally; and the arms at that part run quite to the centre or mouth; which is a small cinquefoil, and appears to be formed of four little plates regularly placed at each angle: on the body, between the arms, the surface is rough, with minute papillæ: colour, when alive, purplish brown, and sometimes blueish ash colour.

Diameter of the body, scarce half an inch; length of the arms, from seven to eight inches, making in all an extent of about sixteen inches, or four feet in circumference. One in my cabinet,

whose



